



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,892	03/19/2004	Hiroyuki Miura	119147	7139
25944	7590	11/04/2005	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			CHEN, SOPHIA S	
			ART UNIT	PAPER NUMBER
			2852	

DATE MAILED: 11/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/803,892

Applicant(s)

MIURA ET AL.

Examiner

Sophia S. Chen

Art Unit

2852

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 9 and 20 is/are rejected.
- 7) ☒ Claim(s) 2-8 and 10-19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3/19/04 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8/4/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 400 (Figure 4). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because of the following informalities:

a. Reference character "A" has been used to designate both "a dispersion liquid" (page 24, line 18, etc.) and "a cylindrical-shaped electro-conductive elastic layer" (page 23, line 23, etc.).

b. Reference character "2" has been used to designate both "an electrophotographic photoreceptor" (page 21, lines 15-16, etc. and Figure 4) and "an electro-conductive roll" (page 27, line 11, etc.).

c. Reference character "3" has been used to designate both "an exposure device" (page 21, line 18, etc. and Figure 4) and "an electro-conductive roll" (page 28, line 2, etc.).

d. Reference character "4" has been used to designate both "a developing device" (page 21, line 20, etc. and Figure 4) and "an electro-conductive roll" (page 29, line 3, etc.).

e. Reference character "5" has been used to designate both "a transfer device" (page 21, line 21, etc. and Figure 4) and "an electro-conductive roll" (page 29, line 18, etc.).

f. Reference character "6" has been used to designate both "a fusing device" (page 21, line 24 and Figure 4) and "an electro-conductive roll" (page 31, line 4, etc.).

g. Reference character "7" has been used to designate both "a cleaning device" (page 21, line 23, etc. and Figure 4) and "an electro-conductive roll" (page 33, line 10, etc.).

h. Reference character "D" has been used to designate "a push-in depth" (page 12, line 10, etc.), "a cylindrical-shaped electro-conductive elastic layer" (page 33, last line, etc.), and "a dispersion liquid" (page 36, line 8).

i. Reference character "8" has been used to designate both "an eraser device" (page 21, line 24, etc. and Figure 4) and "an electro-conductive roll" (page 34, line 21, etc.).

j. Reference character "9" has been used to designate both "a power supply" (page 21, line 17 and Figure 4) and "an electro-conductive roll" (page 38, line 3, etc.).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "electro-conductive roll includes, on an electro-conductive substrate, at least two electro-conductive layers comprised of at least an electro-conductive elastic layer and an electro-conductive surface layer" (claims 2 and 15), "the electro-conductive elastic layer" (claims 3, 5, and 16), "the surface layer" (claims 6, 7, 8, 18, and 19) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Specification***

4. The disclosure is objected to because of the following informalities:
    - a. Page 9, line 16, "(Rz) of the surface of elastic layer)" should be "(Rz of the surface of elastic layer)".
    - b. Page 23, line 23, "cylindrical-shaped" is misspelled.
- Appropriate correction is required.

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 9, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Hashimoto et al. (JP 09-325575 A)

Hashimoto et al. discloses an image forming apparatus comprising: a photoreceptor 1; a charging device 2; an exposure device 3; a developing device 4; a transfer device 5 that transfer a toner image to a receiving medium P; wherein the charging device 2, in a state where voltage is applied thereto, comes in contact with the photoreceptor 1 (Figure 5), and comprises an electro-conductive roll (also a charging roll) 2 that charges the photoreceptor 1, wherein a surface of the electro-conductive roll 2 satisfies the following conditions (a) and (b): (a) the surface of the electro-conductive roll 2 has a 10-point average roughness of 5  $\mu\text{m}$  or less (abstract; less than 8  $\mu\text{m}$ ); and (b) the surface of the electro-conductive roll 2 has a dynamic ultra-microhardness in the range of 0.04 to 0.5 (abstract; less than 65).

***Allowable Subject Matter***

8. Claims 2-8 and 10-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Other Prior Art***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Masuda et al. (US Pat. No. 5,659,854) discloses an image forming apparatus comprising a photoreceptor, a charging roll, an exposure device, a developing device, a transfer device, the surface of the charging roll having a surface roughness of 30  $\mu\text{m}$  or less, and the surface of the charging roll having a microhardness of 65 degrees or less.

Masuda et al. (US Pat. No. 5,982,606) discloses an image forming apparatus comprising a charging roll including an electro-conductive substrate, an electro-conductive elastic layer, and an electro-conductive surface layer; the surface roughness being 4  $\mu\text{m}$  or less; and the surface microhardness being in a range of 80 or less.

Shimura et al. (US Pat. No. 6,052,549) discloses an image forming apparatus comprising a charging roll having a surface roughness of not more than 8  $\mu\text{m}$ .

Endo et al. (US Pat. Pub. No. US 2002/0081130 A1) discloses an image forming apparatus comprising a cleaning roll having a hardness of 5 to 60 degrees.

Sato et al. (US Pat. Pub. No. US 2002/0102115 A1) discloses an image forming apparatus comprising a transfer roll having a surface microhardness of not smaller than



18; and PVDF, fluorine coat and polyurethane were found to have surface microhardness of from 5 to 10, 2 and from about 1 to 2, respectively.

Nagamori et al. (US Pat. Pub. No. US 2003/0095812 A1) discloses an image forming apparatus comprising a charging roll including an electro-conductive substrate, an electro-conductive elastic layer, and an electro-conductive surface layer; and the surface microhardness being in a range of 70 or less.

Yoshida et al. (JP 61-091682 A) discloses an image forming apparatus comprising a cleaning roll having a surface roughness of 2 to 20  $\mu\text{m}$  and a surface hardness of 20-50 degrees.

#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sophia S. Chen whose telephone number is (571) 272-2133. The examiner can normally be reached on M-F (7:00-3:00) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Arthur Grimley can be reached on (571) 272-2136. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2852

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sophia S. Chen  
Primary Examiner  
Art Unit 2852

Ssc  
November 2, 2005